

December 2020

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△ Sarah Pohl from the working group Science Communication interviews Minister Thümler

Working group Science Communication at TWINCORE

by Jan Grabowski

In recent years, the communication of research content has become an integral part of everyday scientific life. With the beginning of the corona pandemic, this necessity has become more evident than ever: Politicians and the general public expect researchers to provide easily understandable statements that can help them to understand current developments. In some cases, far-reaching decisions are also based on recommendations from the scientific community.

In order to support our scientists to develop a feeling for communication of their own research to laypersons or which formats might be suitable, we initiated the Science Communication working group at TWINCORE.

The first module on the topic "interview" has already been completed. Together with the coordinator of communication Jan Grabowski, the participants first analysed interviews. Afterwards they had to become questioners themselves. As part of this year's TWINCORE symposium, they interviewed Björn Thümler, Lower Saxony's Minister for Science and Culture.

"It was very interesting to analyse interviews and thus to find out how to conduct interviews yourself," says

Sarah Pohl, post-doctoral researcher at the Institute for Molecular Bacteriology. "The fact that the whole process had a fixed goal made it even more interesting." Other participants have a similar view. "Analysing interviews helps to understand how experienced scientists and politicians must try to answer eloquently without neglecting the scientific correctness of the statement," says Matthias Bruhn, PhD student at the Institute for Experimental Infection Research. "And in the interview with the Minister, we all realised that this is not as easy as it looks at first glance."

Doctoral student Olivia Gern from the Institute for Experimental Infection Research also picked up specific insights from the workshop: "Above all, I learned how political decisions are made on the basis of scientific findings." Policy advice is considered an important part of science communication, during the corona crisis or, of course, outside of infection research, for example climate research. The importance of science communication in everyday life is clear to Olivia Gern. "I am convinced that open communication is fundamental to making progress, especially during the current pandemic."



Dear colleagues,

The Corona crisis is omnipresent and we are in the middle of it. Many important research projects are now being carried out at TWINCORE, for example the development of new antiviral agents or virus-neutralising antibodies. Every day we have to make sure that we behave in a manner that our work can continue despite of Corona. Our COVID-19 management supports us in this. In addition to our scientific work, we also take care of science communication. This was demonstrated impressively by our "Working Group Science Communication," in an interview with the Minister for Science and Culture Björn Thümler during our symposium! This fall, our advisory board member Charlie Rice was awarded the Nobel Prize for his hepatitis C research.

*We congratulate very warmly!
We also welcome our new RESIST professors Chris Lauber and Marco Galardini!*

Yours, Ulrich Kabi

Computational Biology is here to stay

Two new research groups at TWINCORE are funded by the Cluster of Excellence RESIST. Both have a clear focus on Computational Biology: W1 professor Chris Lauber began to establish his group "Computational Virology" in June and W2 professor Marco Galardini, head of "Systems Biology of Microbial Communities" started in October. We introduce them in this CoreNews.



Chris Lauber

studied Bioinformatics in Jena and completed his PhD in the Netherlands. He worked as a postdoc in Dresden and at a biotech company. His focus is on virus discovery and evolution and on host determinants of susceptibility to viral infections.

What kind of research will you conduct at TWINCORE?

Chris Lauber: I have two main research foci. Firstly, on the host side, we look at genetic determinants and variations in the genome of humans that occur more frequently in certain conditions, for instance in patients with a severe course of a viral infection. Secondly, we look at the virus side as well. We mine large databases for the existence of previously unknown viral sequences and characterize them in terms of virus evolution and correlate their occurrence with diseases of unexplained origin or course of disease. We also try to predict which viruses have the highest potential for causing future pandemics.

Marco Galardini: I also have two research foci I carry out. On the one hand, my group and I try to understand the relation between genetic variants and

changes in phenotype within bacterial species. Different strains of the same species of bacteria can have a genetic variability with differences up to 60% of the genome. I am interested in computational approaches to understand these genotype to phenotype relationships.

On the other hand, which is kind of related, we try to understand how the genetic variability also has an impact on evolution, specifically the evolution of antimicrobial resistance. We test large collections of bacterial strains, expose them to the same conditions and see if one or more of them are able to develop resistance faster or slower and then try to figure out which genetic determinants are responsible for these differences.

How was your start at TWINCORE?

CL: I started in June, so I am already quite settled by now. The only major issue is that my first PhD student is still not here. Partially this is due to the pandemic and it is still not clear when he can start.

MG: I was lucky enough to virtually interview a PhD student before I was here. The candidate accepted to join the lab and as she was already in Europe, she could travel to Germany easily. We started at the same day, 1 October. Apart from that we are still setting up the infrastructure.



Marco Galardini

studied Biotechnology and Bioinformatics in Italy and the Netherlands. He did his PhD in Florence and was a postdoctoral researcher in Cambridge and Boston. He is interested in evolutionary aspects and the connections between genotype and phenotype in pathogenic bacteria.

What are your first impressions of TWINCORE?

CL: I like that both the MHH and HZI are involved and that expertise in medical and basic science is united here at TWINCORE. The people I met are all very nice, although I only had few personal meetings so far due to the pandemic. This way, it's quite hard to really connect.

MG: One of my previous co-supervisors showed me the job advert and that's how I got to know TWINCORE. I also knew Susanne Häußler's work and made the connection. But I can confirm what Chris said that the pandemic is making it difficult to get a comprehensive impression of the institution. For me, the language barrier makes it especially hard to finish all the bureaucratic things but I must say that I have been helped a lot especially by the administrative staff of RESIST. They have been very patient and I have only good things to say about them.

Both of you are bioinformaticians. Which role will computational biology have in the future?

CL: The data that is generated by biological and medical research increased in a non-linear fashion during the past years, and will continue to increase in the future. You need people skilled in computational techniques to address this growing need of data analysis. I would not be surprised if the impact of bioinformatics would further increase in the future. It certainly will not decrease.

MG: The amount of data that you generate in biological sciences nowadays requires some sort of data analysis that goes beyond an Excel spreadsheet. Despite having many different subfields in bioinformatics or computational biology, you will need at least one of them for any experiment that you are planning. Computational Biology is here to stay and it will become more integrated as something that any biologist should be familiar with, at least to some extent.

Thank you for this conversation!

Interview by Jan Grabowski

How does the TWINCORE safely get through the corona crisis?

Katharina Schulz presents her work as COVID-19 manager

“ I had imagined my return from parental leave in spring 2020 differently. Instead of getting used to day-care and starting work step by step, in mid-March it was: Lockdown! Suitingly, I was directly assigned the task of COVID-19 management at TWINCORE.

But what does this actually mean? On the one hand, I prepare the weekly crisis management meeting, in which the current infection situation is evaluated and decisions on specific issues are made. In addition, based on the proposals of the crisis management team, I design diagrams, guidelines and case studies to regulate behaviour at TWINCORE during the SARS-CoV-2 pandemic. These are published on our TWINCORE intranet and regularly adapted to the current situation.

But most importantly, I am available as a contact person for all employees in case they have any queries about COVID-19. Questions about symptoms of illness reach me as well as questions about travelling, room occupancy or celebrations at TWINCORE. I should also be contacted immediately in the event of a SARS-CoV-2 infection at TWINCORE. Together with the infected person, I will then coordinate the next steps and ensure



△ COVID-19 manager Katharina Schulz at work

that all necessary measures can be taken. The declared aim of my work is to reduce fears, define clear rules and thus give our employees the greatest possible security in their behaviour during the pandemic.

I can be reached Monday - Friday until 2 pm in the „glass office“ on the 1st floor, by e-mail or in urgent cases 24/7 on 0176-15325422. //

THIS AND THAT

Change to the TiHo

Gisa Gerold, former head of the junior research group “Viral Proteomics”, accepted the W3 professorship for Biochemistry at the University of Veterinary Medicine Hannover Foundation on 1 September 2020. Until the laboratory at her new place of work is fully equipped and ready for use, her team will be commuting between TWINCORE and TiHo.

Symposium online

This year's TWINCORE symposium was also a complete success as a webinar. More than 220 people joined in, while the experts from Lower Saxony presented the latest research results on the corona virus SARS-CoV-2 by video link.

NEW AT TWINCORE

For some months now we have been introducing new colleagues at TWINCORE in a very placative way - in the truest sense of the word. On small posters at the staircase on the first floor „the new ones“ are depicted. This gives you the names of unknown faces and also their department.



Nobel Prize to Harvey Alter, Michael Houghton and Charlie Rice

by Thomas Pietschmann

This highest scientific award is an outstanding and well-deserved honour for the three scientists.

The three colleagues have carried out pioneer work that led to the discovery of the hepatitis C virus and thus paved the way for the development of diagnostic methods and therapies. After decades

of work by these scientists and many colleagues in our field, chronic hepatitis C is now curable. We are very happy for the winners of the award, which we also see as an appreciation of our field of expertise and also as a mandate to continue research on an HCV vaccine to control hepatitis C infection.



New employees at TWINCORE

Administration

Richala Yaya, *FSJ*

Institute for Experimental Infection Research

Satyajit Nanda, *PhD student*

Berenike Lange, *Technician*

Junior Research Group Translational

Virology

Maureen Obara, *PhD student*

RESIST Research Group Computational

Virology

Prof. Dr. Chris Lauber, *Group leader*

Institute for Experimental Virology

Dr. Martin Kohn, *Postdoc*

RESIST Research Group Systems Biology

of Microbial Communities

Prof. Dr. Marco Galardini, *Group leader*

Bamu Fufor Damaris, *PhD student*

Institute for Molecular Bacteriology

Anna-Lena Hagemann, *Technician*

Debbie Pankratz, *PhD student*

Junior Research Group Pathogenesis of

Bacterial Infections

Tjorven Ostermeier, *Technician*

Nicoletta Schwermann, *PhD student*

CiiM Group Computational Biology for

Individualised Medicine

Dr. Valerie Koeken, *Postdoc*

Wenchao Li, *PhD student*

Alevtina Ochotnikova, *Secretary*

CiiM Group Bioinformatics and Computational

Genomics

Welf Maximilian Bornemann, *Guest student*

Zhaoli Liu, *PhD student*

Dr. Yonatan Mekonnen, *Postdoc*

CiiM Group Immunology of Viral Hepatitis

Hagen Schmaus, *Technician*

Hanan Begali, *PhD student*

Guest Research Group Cell and Gene Therapy

Rose Manuela Godevi, *FWJ*

Rajendra Khanal, *PhD student*

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Issue

December 2020

"Hello dear TWINCORE colleagues,

My name is Richala Yaya and I am the new and first FSJ in the administration of TWINCORE. I am 19 years old and finished the 12th grade in summer. Now I am here for a whole year to complete the practical part of my school education.

Some of you have probably already received e-mails from me or sent them to me, for example for the new parking permits. I mainly support the administration. My tasks are quite different every day and range from filling in forms and translating documents to layout work!

Thanks to this variety, I really enjoy working at TWINCORE, as no day is like another. In addition, the people here are very friendly, so I have felt at home since the first day. I look forward to continuing to be part of this team!



Best regards and good cooperation

Richala

PS: You may all call me by my first name! //

What will our work look like in the future?

This question is the focus of the „Innovative Workplace“ working group

by Elisabeth Janecek-Erfurth and Katharina Schulz

The daily work of scientists in the life sciences has changed dramatically in recent years. The time spent in front of the computer is increasing, while the time spent in highly concentrated pipetting at the laboratory bench is decreasing significantly.

Instead of working alone, people increasingly work in teams and contribute important steps to a complex process of gaining know-ledge. The working conditions must be designed in such a way that people like to come to work and work efficiently and can contribute their full creative potential.

Nevertheless, the rules for occupational safety, genetic engineering, protection against infection and the workplace ordinance naturally still apply. And the current hygiene rules during the pandemic must be observed. These requirements must be taken into account when planning workplaces. As a result, it is no longer possible today to simply assign new doctoral students some laboratory space so that they can start research immediately.

But how does modern work management work under these increased requirements? This question is currently being investigated by practically all companies. As it is particularly difficult to find good and practicable answers to this question in the life sciences, we have founded the „Innovative Workplace“ working group. This working group is headed by Katharina Schulz from the safety management and the management of TWINCORE. The working group also includes employees from various TWINCORE work areas.

The first approaches to solutions have already been worked out, which we are now implementing step by step. In order to be able to work (almost) anywhere in the centre, flexible computer workstations have been created, laptops have been purchased and the wireless network has been improved. We are currently setting up a „work and meeting island“ in the foyer - as proposed by the working group. We are very curious about all further suggestions from the working group!